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REMARKS

In the previous response, Applicant articulated distinctions between the present claims and the reference cited thus indicating that the reference was insufficient to anticipate the claims. The content of the previous response is incorporated by reference in its entirety. The Examiner has replied by indicating that the reference "inherently" teaches what is claimed. Applicant respectfully traverses.

Claim 1 includes delivering a pacing pulse to a chamber of the heart, sensing a signal within the chamber following delivery of the pacing pulse; and determining whether the pacing pulse captured the heart based on one or more morphological characteristics of the sensed signal.

The Examiner has stated that the previous response argued elements not found in the claims. To the contrary, the Examiner is adding elements to the reference that are in fact not taught. Applicant has not and does not assert that simply making a determination of whether or not a given pacing pulse captures a given cardiac chamber is, in and of itself novel. Rather, the present claim is patentably distinguishable over the art of record because in, e.g., claim 1, the determination is made based upon a morphological analysis of the the signal sensed in the same chamber the pacing pulse was delivered in.

One way to determine capture is to pace in the atrium and monitor the ventricle. If the atrium captured, the ventricle will depolarize within a specific time window when intrinsic conduction is present. If the ventricle depolarizes outside of this time window (too late or too early), then ventricular depolarization is either autonomic (underlying ventricular rate) or the result of an intrinsic P wave that is generated at a time other than the atrial pace. Another method would involve sensing the existence of an evoked response. For example, if a ventricular pace is delivered the ventricle should depolarize a short time later if capture occurs. Ventricular depolarization may be sensed as a far field R wave on the atrial channel. Thus, capture is determined by whether an R wave is sensed within a

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given time and has nothing to do with the morphological characteristics of the R wave itself.

As a practical matter, in order to obtain and then process a signal and make a determination based upon that signal's morphology, DSP would likely be utilized, as in certain embodiments of the present invention. To the extent the Examiner interpreted this generalization as an argument by Applicant that the claims required DSP, then the Examiner would be correct in stating that such a feature is not found in, e.g., claim 1. That being said, the claim does require a determination of a morphological characteristic and that requires more than sensing the presence or absence of a given signal and its relative timing (i.e., when it occurs). For example, the shape, slope, duration, width or other such factors may be utilized in making a morphological determination as explained in the specification.

The Wohlgemuth reference is cited by the Examiner because it does teach the use of DSP. The fact that the reference also mentions capture detection is relied upon by the Examiner. However, the reference does no more than reference capture detection. It does not make any mention of how capture detection is performed and as indicated above, there are numerous other known methods of determining whether capture occurred. Thus, it is inappropriate for the Examiner to assume that because the reference includes DSP and has P wave processing that the morphology of any given signal is examined to determine capture. The reference simply does not state this and that does not mean it is simply an inherent feature.

The notion that the presence of a given signal (e.g., sensed R wave, sensed P wave) is a "morphological determination" because the signal varies from a baseline is an improper reading of the claim language. The Examiner properly states that limitations will not be read into the claims from the specification. However, the terminology "morphological characteristics" must be given a proper meaning in the context of the claim and in the context of the

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specification. Simply detecting any signal as a variation from a baseline is not an appropriate reading.

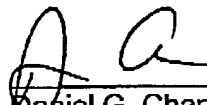
As further support, consider the above prior art examples where the timing of a response determines capture. The same variation in baseline would occur (as used by the Examiner) whether evoked or intrinsic. Thus, the Examiner's interpretation of the reference does not provide a basis for anticipation. The present claims provide a system where the signals morphological characteristics are evaluated to determine if the previous pacing pulse captured. This occurs regardless of the relative timing. That is, a captured pulse may lead to a sensed signal that, based upon timing, would appear not to have been evoked. By determining the morphology of the signal, the present invention is able to make that determination.

No reference or combination of references teaches determining the morphology of a sensed signal to determine capture, based upon a properly construed definition of "morphological characteristics" or similar terminology as used in the specification and claims.

Applicant respectfully asserts that the claims are in condition for allowance and requests notice of the same. If there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned attorney to attend to these matters.

Respectfully submitted,

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